

Action Item

Acceptance of Discussion Draft of Delta Plan Revisions regarding Priorities for State Delta Levees Investment

Summary: Staff requests Council concurrence on the Discussion Draft for the Amendment of the Delta Plan's Provisions to Reduce Risk to People, Property, and State Interests in the Delta, including Priorities for Investment in Delta Levees (Discussion Draft). This Discussion Draft will be used to solicit input from the public which will help inform the final Delta Plan amendment and a Council report to the Legislature about Delta flood risk management and recommended levee investments. The Discussion Draft includes a potential prioritization of State investments in Delta levees in accordance with Water Code section 85306.

Requested Action

Staff requests Council concurrence on the Discussion Draft (Attachment 1-3) to be used in stakeholder outreach sessions.

Background

The Delta Reform Act requires that the Delta Plan promote strategic levee investments that attempt to reduce risks to people, property, and State interests in the Delta (Water Code section 85305) and recommend priorities for State investment in levee operation, maintenance, and improvements in the Delta (Water Code section 85306). To address these requirements, the Delta Plan included an interim regulatory policy about levee investment and a pledge that the Council would promptly update those priorities, considering risks to State interests, by ranking Delta islands where levee investments are a priority. Over the course of two years, staff and the Arcadis consulting team have coordinated with the Council to identify State interests in the Delta that are vulnerable to flooding, principles to guide the development and refinement of potential Delta Plan policies and recommendations, and to evaluate risks to State interests due to potential levee failure. These efforts were synthesized into a discussion draft of a Delta Plan amendment that was presented to the Council in August (August draft).

At this meeting, the staff is presenting revisions to the August draft and additional information in response to Council requests and public comment at the August Council meeting. Alternatives the Council could consider are also offered. Attachment 1 is a red-line version of the current *Policies and Recommendations* section from Delta Plan Chapter 7. Changes to the August version of this attachment are highlighted in yellow.

Attachments 2 and 3 present a potential grouping of islands and tracts into priorities for State investment in Delta levees. The map of priority tiers shown in Attachment 2 has

been updated, as has the list of island priorities shown in Attachment 3. An explanation of Attachment 3's contents has also been added.

For today's action item, staff is requesting Council concurrence that the Discussion Draft is adequate for use in stakeholder outreach sessions to be held in October.

General Update

The August draft staff report described in detail the proposed recommendations and policies that could be implemented in a Delta Plan amendment. The descriptions below summarize the Discussion Draft's provisions, emphasizing changes suggested from the August draft. New information is reported, where available, and alternative approaches acknowledged for Council consideration.

A. Improve Emergency Preparedness and Response

- Implement Emergency Preparedness and Response. This recommendation encourages the stockpiling of material for post-disaster repairs to the water supply reliability corridor that conveys water through Old and Middle Rivers to the State Water project and Central Valley Project export pumps. These stockpiles complement the levee improvements along this corridor prioritized in Attachments 2 and 3. In response to Council member Piepho's request, an excerpt from the Delta Plan's map depicting this corridor is attached (Attachment 4).
- Revise the Guidelines for the Army Corps of Engineers' Rehabilitation and Inspection Program (PL 84-99). As discussed in August, in the event of a disaster that damages levees on multiple Delta islands, repair and recovery assistance through the Corps of Engineers' Rehabilitation and Inspection Program (PL 84-99) can prove critical. The PL 84-99 program's current guidelines, however, should provide clearer assurance that assistance in repairing essential levees in the Delta will be provided, including consideration of the economic benefits of repairs that restore water and transportation services and protect the environment. Unnecessary impediments to local levee agencies' participation in the program should be reduced.

Some stakeholders and partner agencies have expressed concern that the recommendation implies that local agencies ought to be participating in the PL 84-99 as currently administered by the Corps. In response, the recommendation has been rewritten to improve its clarity.

B. Finance and Implement Local Flood Management Activities

- Delta Flood Risk Management Assessment District. On the advice of the Delta Protection Commission (DPC) staff, this current Delta Plan recommendation to establish a regional flood risk management district with fee assessment authority has been removed. DPC's preliminary findings from its Delta Flood Risk Management Assessment District Feasibility Study suggest that establishment of a regional flood risk management district is not a viable solution, but that other approaches to cost-sharing among project beneficiaries should be explored further. DPC will brief the Council on its study in October.

Updated recommendations on cost sharing will be developed in consultation with the DPC for Council consideration at its November meeting. Alternatively, the Council could retain the recommendation pending DPC's forthcoming analysis and alternative recommendations.

C. Other Provisions

- Require Adequate Levee Inspections. No change is proposed in the Discussion Draft's recommendation that the Central Valley Flood Protection Board should update its guidelines for the Delta Levees Maintenance Subventions Program to require annual inspections of Delta levees conducted by the local levee maintaining agencies that participate in the program. Although there was some input about the recommendation at the August meeting, no proposals for alternative inspection provisions have been received.
- Acquire Easements to Reduce Subsidence. Disagreement continues about the importance of Risk Reduction Recommendation 4, which would require DWR to acquire easements over a "zone of influence" on the inland side of levees, where feasible, to mitigate subsidence, unless DWR determined the easement was unnecessary. DWR currently has the authority to buy these easements where it determines they are necessary (Water Code section 12987(b)), but has purchased only one in the 20 years since the Legislature granted it this authority.

Approaches to managing subsidence that may affect levees were reviewed carefully by a CALFED Bay-Delta program technical committee, which concluded:

As long as island subsidence is adequately managed within the ZOI [Zone of Influence], levee integrity should be unaffected.

Reclamation district engineers and DWR's Delta Levees Office chief Dave Mraz have testified that because subsidence in the areas adjoining levees is adequately managed, purchasing easements to control it is unnecessary. Furthermore, the cost of buying and maintaining easements would reduce funds available for structural levee improvements, they testified. Contrary advice has been received from consulting hydrologist Dr. Steve Deverel, who writes that "stopping subsidence adjacent to levees will help reduce the probability of failure from ongoing subsidence" (Attachment 5).

Information that can resolve the disagreement about management approaches for the "zone of influence" is not readily available. On islands with notable peat soils, where high priority State interests are at greatest risk from levee failure, DWR is transitioning its land on Sherman and Twitchell Islands to managed wetlands or rice production to mitigate subsidence. Aerial photos of Jersey Island do not reveal cultivation within the zone of influence. Opportunities to use easements to control subsidence may exist at Brannan-Andrus Island or along undeveloped shorelines of Bethel Island, especially the several miles of levees at Bethel Island's northwest corner. Many areas on islands proposed as high priority for levee investment also

seem candidates for applying the “zone of influence” approach to managing subsidence, but would require more detailed assessment of the utility of purchasing an easement.

Two alternatives are available to the Council to address this disagreement:

1. Eliminate provisions regarding the purchase of easements to control subsidence from the DLIS amendment. DWR would retain its current authority to fund easements when it determines they are desirable if districts propose them as part of their levee improvements.
 2. Retain the proposed regulatory policy of the August draft requiring that levee improvements funded through the special projects program include easements unless DWR determines they are not needed.
- Encourage Participation in the Corps of Engineers’ PL 84-99 Program. The August draft had encouraged participation in the PL 84-99 program if its requirements were modified to better fit Delta conditions and needs. As a midterm option that would be advisable for most local agencies only if the Corps’ rules are revised, the recommendation can be deferred until after the Corps has acted, and so is removed from the Discussion Draft. Alternatively, the Council could retain the previous language for the purpose of stakeholder discussion and decide after the public workshops whether the language should be removed.
 - New State Funding for Non-Structural Risk Reduction. To provide a more comprehensive and better balanced State flood risk reduction program, the August draft recommended that the State establish a hazard mitigation program that provides grants to local governments and flood management agencies to support emergency preparedness actions and non-structural flood risk reduction actions, such as flood proofing. The proposal is unchanged.
 - Update Delta Levees Subvention Program Cost-Sharing Provisions. The recommendation has not changed from the August draft. Rather than revising it now, the staff suggests that cost-sharing provisions be discussed more thoroughly during October’s public workshops and at the October Council meeting when the DPC will report on its Delta Flood Risk Management Assessment District Feasibility Study. The DPC is studying how to implement a key Delta Plan recommendation to expand the beneficiaries that help fund levee maintenance and improvement. At DWR’s request, it is also reviewing approaches to considering reclamation district’s ability to pay for levee maintenance. The results of its studies may inform this recommendation.

Upon confirming that the subventions program’s current provision establishing a \$1,000/mile deductible from maintenance subsidies dates from 1981, recalculation based on the consumer price index shows its current value is \$2,610 rather than \$5,600 per mile we reported in August.

- Provide Public Access on Appropriately Located Delta Levees. The August draft, proposed a regulatory policy requiring DWR, when funding significant levee

improvements in cities, Delta legacy towns, or adjoining State highways, to obtain easements for bicycling or bank fishing except where there are conflicts with public safety or fragile resources. The provision was referred to the DPC, whose response provided the basis for the recommendation presented in this Discussion Draft. DPC recommends leaving the determination solely to the local levee maintaining agency. Our draft, however, recommends opening consideration of public safety or resource protection issues to others. Our recommendation would be consistent with current law, which requires only that plans for levee improvement “take into account” the California Natural Resources Agency’s (Resources) *1973 Delta Master Recreation Plan* (Water Code section 12997(e)).

As discussed in the August staff report, an additional or alternative approach could be a recommendation that DWR include provisions encouraging proposals that include public access when evaluating levee improvement projects.

C. Prioritization of State Investments in Delta Levees and Risk Reduction

The introductory text of this section has been modified to more clearly state that the intention of the Council’s policy is to reduce flood risk in the Delta in a cost effective manner that meets the coequal goals of California law.

- Prioritization of State Investments in Delta Levees and Risk Reduction. No change is proposed in the text of the proposed regulatory policy.

An alternative that the Council may wish to consider, however, could provide more general guidance about levee priorities, directing DWR to prioritize investments in levees that protect lives, property, and water supply reliability, and contribute to ecosystem restoration, while considering the Delta’s agricultural, recreational, and cultural values, using the priorities of Attachment 2 and 3 as a guide rather than as a regulatory requirement. DWR would be required to report to the Council on how its investments further the objectives above, and to explain divergences from the priorities of Attachment 2 and 3. This alternative would provide less certainty about levee investments than the approach proposed in the Discussion Draft, but would increase DWR’s ability to respond to new information while still enhancing the transparency of its levee investment decisions.

- Rankings of Islands and Tracts. The prioritized ranking of islands and tracts for levee investment shown in Attachments 2 and 3 has been updated since the August Council meeting. As requested by Judge Damrell, the table indicates islands’ and tracts’ current risk of levee failure, for information purposes. In addition, these adjustments in rankings are proposed:
 1. Levees bordering the Yolo Bypass and Paradise Cut have been moved to the High category due to significant risk opportunities associated with improving those levees, including potentially setting back portions of them. Improving levees at the Yolo Bypass is important to the Brown Administration’s Yolo Bypass Partnership and, by rerouting floodwater from the Sacramento River to the bypass, reduces flood risks in the Delta at West Sacramento and

Sacramento's Pocket neighborhood. Levee improvements can also contribute to enhancing the value of fish habitats on the bypass' floodplains. A San Joaquin River Bypass, to widen Paradise Cut to reduce flood risks in metropolitan Stockton and communities south of the Delta and enhance floodplain habitat, is already endorsed in the Delta Plan's recommendation RR R5. More detailed feasibility studies of specific levee improvements, including potential setbacks, and evaluation of the projects' benefits are underway. These two floodways were not valued for flood probability or for risk, so other columns are blank.

2. Additional islands and tracts along Suisun Marsh's south-facing open water perimeter from Montezuma Slough east through Van Sickle Island have been moved to the High category from the Other category because of their significance in protecting Suisun Marsh habitat and water management facilities. The August draft had proposed a High priority ranking only for Grizzly Island.
3. DLIS-08 (Discovery Bay Area) and New Hope Tract have moved to the High category from the Other category as a result of updated levee failure probabilities. DLIS-08 is now identified as having a high risk for water supply. The priority of New Hope Tract has been increased because of risks to transportation infrastructure; it holds I-5, which has a flood probability greater than 2 percent.
4. Prospect Island priority was reduced to Other Priority from High Priority as a result of revised flood probability data. Because the island is proposed for habitat restoration to comply with the fish agencies' biological opinions, funds for restoration there would come from water users, not levee investment programs.
5. Netherlands and Pearson District, two reclamation districts on the Sacramento River have been moved from High Priority to Other Priority to more accurately reflect risks to property there. These districts' levees have lower risks of failure than most others.

The changes at Discovery Bay, New Hope Tract, and Prospect Island result from Arcadis' further review and corrections to the probability of flooding from seismic failure.

Total costs to bring levees on Very High Priority islands and tracts to applicable objectives total \$1.813-\$1.815 billion, according to estimates provided by reclamation district engineers and Central Valley Flood Protection Plan regional flood management plans. \$1.779 billion of this sum is attributable to urban areas, and \$35 to \$75 million to rural islands and tracts. Total additional costs to bring nonproject levees on High Priority rural islands and tracts to applicable objectives are estimated at an additional \$109 million to \$268 million. Costs of improving rural project levees, including the Yolo Bypass and Paradise Cut, are hundreds of millions more.

State funds for urban levee improvements are available from existing Proposition 1E Urban Flood Risk Reduction funds, matched by the Corps of Engineers and local flood management authorities. \$155 million of special projects and subventions funds remain available for rural Delta levees, of Proposition 1E and 84 bond funds. If these funds continue to be allocated 60 percent for special projects and 40 percent for subventions, with annual subventions spending for levee maintenance continuing to average \$8 million annually, then these existing funds would be sufficient to cover approximately \$93 million of the \$144 to \$343 million (27 percent to 64 percent) needed to improve the levees on Very High and High Priority islands and tracts to current objectives and

subsidize levee maintenance for about eight more years. The imbalance between need and available funds underscores the importance of the Legislature's direction that the Delta Plan should recommend priorities for State levee investments.

The DPC recommends that the Council also rate islands and tracts as higher priorities when only modest additional improvements are needed to bring a reclamation districts entire levee system up to the applicable levee objective. A review of DLIS data on levee conditions shows Netherlands is the only Other Priority island where 10 percent or less of its levees may need improvement to meet the applicable standard. Because retaining Netherlands at the High Priority standard would not significantly alter the imbalance between available and necessary funds, the Council may wish to consider that adjustment.

D. Potential Council Recommendations about Proposition 1 Delta Levee Funds

In addition to the Proposition 1E and Proposition 40 funds noted above that remain available for rural Delta levees, Proposition 1 (2014) includes an additional \$295 million to "reduce the risk of levee failure and flood in the Delta" for any of the following:

1. Local assistance under the Delta levee maintenance subventions program
2. Special flood protection projects (*Delta Special Projects*)
3. Levee improvement projects that increase the resiliency of levees within the Delta to withstand earthquake, flooding, or sea level rise
4. Emergency response and repair projects

Funds must be used for multi-benefit projects that achieve public safety and include fish and wildlife habitat enhancement (Water Code section 79780).

These funds have not yet been appropriated by the Legislature. The Council should consider whether it wishes to make recommendations about their use in the DLIS, in either the Council's report to the Legislature or the Delta Plan. Choices could include:

- Targeting the funds at significant, large scale multi-benefit projects, such as improvements to the Yolo Bypass or creation of the San Joaquin River Bypass at Paradise Cut.
- Distributing the funds among the levee subventions and special projects programs for investment consistent with the priorities of Attachments 2 and 3 and for levee maintenance subsidies.
- Holding funds in reserve to address future needs, such as risks created by rising sea levels that are now only partially understood.

E. Anticipating Climate Change

The priorities recommended in Attachment 2 and 3 reflect current conditions, including existing levee infrastructure, current hydrology including contemporary sea levels, and known seismic hazards. Staff believes that the priorities reflect reasonable investment priorities to address existing risks over the coming decade.

As the climate continues to change, however, the risks to Delta levees will change too. Rising seas will increase the pressure against levees below tidal elevations and

increasingly erratic river discharges will raise flood elevations. Recent science suggests that by 2100, these impacts may be significantly worse than previously understood.

To anticipate these changes, the DLIS assessed risks to existing levees from sea level rise at 2035 and 2050, considering two scenarios for sea level rise recommended by Resources' most recent Climate Change Assessment. Attachment 6, reflecting recent science that sea level rise may be at the higher end of current scenarios, portrays the risk of flooding with existing levees for a potential 2050 rise in sea levels at Walnut Grove of about 5 to 7 inches. As Attachment 6 shows, risks of levee failure are higher across most of the Delta under a high sea level rise scenario. The investments proposed in the Discussion Draft can mitigate these increases in risk on the Delta's western islands and Suisun Marsh's southern border. In the interior of the Delta, including along the Mokulemne River corridor, along the Sacramento River's east bank from Freeport to Locke, and in the interior of Suisun Marsh, however, where the Discussion Draft does not prioritize levee investments, risks of levee failure could rise to five percent or more annually.

Consideration of future use and protection of areas threatened by rising sea levels should be part of future five year reviews of the Delta Plan. This consideration should include coordination with CalTrans' plans for protecting State and interstate highways, consideration of plans for restoration of tidal marshes in Suisun Marsh and elsewhere, improved understanding of how levee failure may affect Delta water quality, and other considerations.

Next Steps

If the Council accepts the attached draft for discussion purposes, then staff will use the attached documents to solicit additional input from Delta stakeholders at two public outreach sessions to be held in October.

Fiscal Information

Not yet available.

List of Attachments

Attachment 1: Discussion Draft of Potential Revisions to Chapter 7 Policies and Recommendations

Attachment 2: Discussion Draft Map of Prioritization of Islands and Tracts

Attachment 3: Discussion Draft Prioritization of Islands and Tracts

Attachment 4: Delta Plan Map of Water Supply Reliability Corridor

Attachment 5: Letter from Dr. Steve Deverel regarding Subsidence Management

Attachment 6: Risk of Levee Failure at 2050 – High Sea Level Rise Scenario

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